

Appln. Serial No.: 09/871,821  
Amend. Dated September 5, 2006  
Reply to Office Action of May 4, 2006

Page 2 of 4

**Remarks/Arguments:**

Claims 25-56 remain in the present application.

The Examiner rejected claims 25-56 under 35 U.S.C. 102(b) as being anticipated by US Patent No. 4,933,048 (Lauks). Applicant respectfully disagrees. Lauks is directed to a reference electrode for detecting the presence of a quantity of a particular ion of interest in a solution. The reference electrode comprises a metallic member coated with an electrode material, and a layer of an electrolyte formed over the electrode. A first portion of the electrolyte is covered by a membrane which is permeable to water, but not to the ion of interest. A second portion of the electrolyte is not covered by the membrane and is, thus, exposed to the solution containing the ion of interest. In use, water passes through the membrane to rapidly "wet up" the first portion of the electrolyte near the electrode, while ions from the surrounding solution pass through the second portion of the electrolyte material. The time required for the ions to move from the second portion to the first portion of the electrolyte material (and, thus, adjacent to the electrode) is much more than the time required to wet-up the first portion of the electrolyte material. This is because the distance between the membrane and the electrode is much smaller than the distance between the second portion of the electrolyte material (where the ions enter) and the electrode. A potential difference between the reference electrode and a working electrode is measured.

By contrast, the present claims are directed to an electrokinetic circuit, not a reference electrode. A voltage is applied to a conductor element (matrix layer) to enable the separation of ionic species. The matrix layer is ideally composed of a material of a high electroosmotic coefficient to maximize flow rate at a given applied voltage (see bottom of page 11- top of page 12 of the description). Clearly, Lauks is not applicable for anticipation since Lauks is directed to a completely different invention. Lauks neither teaches nor suggests the addition of an aqueous solute to the device for electrokinetic transport of the solute. The movement of ions from the second, more distant portion of the electrolyte material is not achieved through the input of an electrical potential and is not, thus, electrokinetic transport. Further, Lauks neither teaches nor suggests the wetting-up of a matrix layer as presently claimed. In Lauks, the efficacy lies in maintaining electrical equilibrium of the electrolyte prior to the infiltration of ions from the second portion of the

Appln. Serial No.: 09/871,821  
Amend. Dated September 5, 2006  
Reply to Office Action of May 4, 2006

Page 3 of 4

electrolyte. The second portion of the electrolyte material must be sufficiently distant from the electrode to enable this equilibrium and provide an accurate reading of ion presence (see Fig. 4 in Lauks). In the present invention, however, once the matrix layer is wetted, it is in an active state for electrokinetic transport of solute. No quantity of ions is required.

Therefore, Applicant respectfully submits that the present claims are not anticipated by Lauks. Withdrawal of this objection is respectfully requested.

The Examiner rejected claims 25-56 under 35 U.S.C. 103 as being unpatentable over US Patent No. 6,129,828 (Sheldon) in view of US Patent No. 4,048,377 (Boschetti). Applicant respectfully disagrees.

Sheldon is directed to an apparatus for sample preparation and separation of biological materials. Sheldon uses a "trap" (e.g., filter, membrane or the like) in a spacer compartment between two electrodes for retaining desired materials while letting undesirable materials pass through (see column 13, lines 15-61). As the Examiner acknowledges, Sheldon neither teaches nor suggests a rehydratable film, such as the wettable matrix layer of the present invention. Further, Sheldon provides no teaching, suggestion or motivation to include water-vapour permeable cover layer on the matrix layer, as presently claimed.

Boschetti is directed to a rehydratable film. As indicated in column 2, lines 42-46, the film must be immersed in a buffer solution for several hours to become completely rehydrated. Thus, the film in Boschetti is particularly impractical for use in the electrokinetic circuit of the present invention, which is designed to facilitate a more convenient and facile analysis of biological samples and the like. Boschetti, like Sheldon, neither teaches nor suggests a water-vapour permeable cover layer, as claimed in the present invention. Thus, Sheldon and Boschetti, taken alone or in combination, neither disclose nor teach the circuit of the present invention.

RECEIVED  
CENTRAL FAX CENTER

008/008

Appln. Serial No.: 09/871,821  
Amend. Dated September 5, 2006  
Reply to Office Action of May 4, 2006

SEP 05 2006

Page 4 of 4

Therefore, Applicant respectfully submits that the subject matter of the claims would not have been obvious having regard to Sheldon in view of Boschetti. Withdrawal of this objection is respectfully requested.

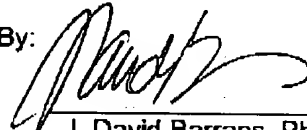
The Commissioner is hereby authorized to debit \$60.00 from Deposit Account No. 501593, in the name of Borden Ladner Gervais LLP, representing a one month extension of time.

The Commissioner is hereby authorized to charge any additional fees, and credit any over payments to Deposit Account No. 501593, in the name of Borden Ladner Gervais LLP.

Respectfully submitted,

LAUKS, Imants, R.

By:



J. David Barrans, Ph.D.  
Reg. No. 58,989  
Borden Ladner Gervais LLP  
100 Queen Street, Suite 1100  
Ottawa, ON K1P 1J9, CANADA  
Tel: (613) 237-5160  
Fax: (613) 787-3558  
E-mail: ipinfo@blgcanada.com

JDB/jem